ABSTRACT OF THE DISCLOSURE

Micromachined vibratory gyroscope having two or more coplanar movable masses suspended over a planar substrate. Two perpendicular axes (x and y) are defined within the substrate plane, while a third, the z-axis or input axis, is defined to be perpendicular to the substrate plane. The movements of the two masses along the x-axis are coupled through an electrostatic coupling means so that the natural resonant frequency of the in-phase mode and that of the anti-phase mode are separated from each other for the resonances along the x-axis. When the two masses are driven to vibrate along the x-axis in the anti-phase mode and the device experiences rotation about the z-axis, Coriolis forces act differentially on the masses in the Y-direction, causing the two masses to dither in an anti-phase motion along the y-axis. The anti-phase dithering along the y-axis can be sensed directly by a rate sensor to measure the rate of rotation about the z-axis. Alternatively, the anti-phase dithering of the first and second bodies along the y-axis can be transferred to other movable bodies (*i.e.,* rate-sensing masses) whose movement is then sensed to measure the rate of rotation about the z-axis. The sensing bodies are preferably suspended in such manner that, in the absence of Coriolis forces, the x-axis motion of the vibrating masses does not affect the sensing bodies. That inhibits motion of the sensing bodies in response to linear acceleration within the plane of the substrate, but permits those bodies to respond readily to the Coriolis-induced motion about an axis perpendicular to the substrate plane.